

Principles of Statistics (1)

English section

Group (A)

Sheet 1

1. A politician who is running for the office of mayor of a city with 25000 registered voters commissions a survey. In the survey, 48% of the 200 registered voters interviewed say they plan to vote for her.
 - a. What is the population of interest?
 - b. What is the sample?
 - c. Is the value 48% a parameter or a statistic? Explain

2. A manufacturer of computer chips claims that less than 10% of his products are defective. When 1000 chips were drawn from a large production, 7.5% were found to be defective.
 - a. What is the population of interest?
 - b. What is the sample?
 - c. What is the parameter?
 - d. What is the statistic?
 - e. Does the value 10% refer to the parameter or to the statistic?
 - f. Is the value 7.5% a parameter or statistic?
 - g. Explain briefly how the statistic can be used to make inferences about the parameter to test the claim.

3. Classify each of the following as nominal, ordinal, interval or ratio data.
 - a. The sales of a restaurant (in dollars)
 - b. The availability of certain product in a town stocks..
 - c. Grades on a test range from 0 to 100.
 - d. Ranking of Financial institutions according to the volume of deposits.
 - e. The size of soft drink (small, medium, or large) ordered by a restaurant customers.
 - f. Fahrenheit temperature reading .

4. Information about a magazine's readers is of interest to both the publisher and the magazine's advertisers. A survey of readers asked respondents to complete the following:
 - a. Age.
 - b. Gender.
 - c. Marital status.
 - d. Number of magazine subscription.
 - e. Annual income.
 - f. Rate the quality of our magazine: excellent, good, fair, or poor.

Determine the measurement scale for each.

5. If you know that you are capable of applying both the experimentation method and the surveying method when collecting the data for your study? Which of them would you prefer to use? Clarify your answer.
6. State for the following whether we can use the experimentation method or not? Clarify your answer.
 - a) Studying the effect of the soil fertility on the amount of the harvest.
 - b) The relationship between the brain size and the IQ.

Complete:

1. . The complete collection of all entities under study is called the _____.
2. . A portion (subset) of the entities under study is called the _____
3. A university employs 2500 faculty and staff. To ascertain how the employees feel regarding a health insurance plan, 250 of the employees are surveyed. The proportion of employees who favor the health insurance plan among the 250 employees is a. _____.

4. Manuel Banales, Marketing Director of Plano Power Plants, is leading a study to identify and assess the relative importance of product features. Manuel directs his staff to design a survey questionnaire for distribution to 100 of Plano's 954 customers. For this study, the set of 100 customers is a _____ and the set of 954 customers is a _____.
5. When a person collects information from the entire population, this is called a _____.
6. Sue Taylor, Director of Global Industrial Sales, is concerned by a deteriorating sales trend. Specifically, the number of customers is stable at 1,500, but they are purchasing less each year. She orders her staff to search for causes of the downward trend by selecting a focus group of 40 industrial customers. One question asked the focus group customers to determine number of times they buy their products weekly. The average number of products purchased of the 40 customers to this question is a _____.
7. Using data from a group to generalize to a larger group involves the use of _____.
8. A statistics instructor collects information about the background of his students. About 30% have taken economics and about 40% have taken accounting. There are 23 male students and 27 female students in this class. This is an example of _____.
9. A student makes an 82 on the first test in a statistics course. From this, she assumes that her average at the end of the semester (after other tests) will be about 82. This is an example of _____.
10. The lowest level of data measurement is _____.

Choose:

1. Which of the following operations is meaningful for processing nominal data?
 - A. addition
 - B. multiplication
 - C. ranking
 - D. counting

2. Which scale of measurement has these two properties: linear distance is meaningful and the location of origin (zero) is arbitrary?
 - A. interval level
 - B. ordinal level
 - C. nominal level
 - D. ratio level

3. Which scale of measurement has these two properties: linear distance is meaningful and the location of origin (zero) is absolute (natural)?
 - A. interval level
 - B. ordinal level
 - C. nominal level
 - D. ratio level

4. Which of the following operations is meaningful for processing ordinal data, but is meaningless for processing nominal data?
 - A. addition
 - B. multiplication
 - C. ranking
 - D. counting

5. Colleges and universities often assign numbers as student identification numbers. These numbers are best categorized as what level of data?

- A. interval
- B. nominal
- C. ordinal
- D. ratio

6. Undergraduate university students are usually classified as freshmen, sophomores, juniors, and seniors. If numeric codes of 1, 2, 3, and 4 are used to represent these four categories, the level of data measurement is _____.

- A. nominal
- B. ordinal
- C. interval
- D. ratio